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Red Hill Creek Expressway
North-South Section

DRAFT

June 1998

Ministry
of
Transportation
Ontario

Focused on Design and Construction

Information presented in this document is a product of the Impact Assessment and Design Process the Region was authorized to carry out by the Ministry of Environment, in March 1997.

If you have any questions or comments, please contact:
Chris Murray, Environmental Planner,
Special Projects Office,
The Region of Hamilton-Wentworth, at:

Special Projects Office
10th Floor, 25 Main Street West
Hamilton, Ontario
L8P 1H1

Tel: (905) 546-2486
Fax: (905) 546-2385
E-mail cmurray@hamilton-went.on.ca

Report by
Jack Porat

The Region is currently focused on the design and construction of the Red Hill Creek Expressway. The purpose of this document, therefore, is to provide concerned parties an understanding of:

- Changes that have been made to the Expressway design approved in 1985;
- Impacts of the current Expressway design on features within the Red Hill Valley, the adjacent neighbourhoods and along the Queen Elizabeth Way;
- How impacts will be reduced (mitigation); and
- Future opportunities for community input to the design of this project.

Since June of 1997, the Region has advertised and held over a dozen public meetings related to the design of the Red Hill Creek Expressway. At every event participants have expressed concerns about the impacts this project will have on the Red Hill Valley and the people living in adjacent neighbourhoods. Some have also questioned the need for the Expressway, and whether or not alternative locations have been considered.

The Region initially addressed need and alternative locations in 1982 and in 1985, when the Joint Hearing Board approved the Red Hill Creek Expressway. The Region and Ministry of Transportation then revisited the need for the project in the 1990's.

The conclusions of these planning studies have not changed. The east end of Hamilton still lacks the roadway capacity needed to meet future (year 2020) peak-hour traffic demands across the Niagara Escarpment in the northbound and southbound direction. Alternatives to the Red Hill Valley route were examined but due to cost, neighbourhood disruption and environmental impact, none are considered more acceptable than the current Expressway project.

The following documents that support these conclusions are available at the Region and in the Central Hamilton Library:

- Region of Hamilton-Wentworth, Mountain East-West and North-South Transportation Corridor (Volumes 1 and 2) – Environmental Assessment Submission, December 1982
- Joint Hearing Board Report, October 1985
- Ontario Ministry of Transportation, Technical Report – The Red Hill Creek Four Lane Road, March 1994
- Region of Hamilton-Wentworth, Red Hill Creek 4-Lane Road – Technical Memoranda, July 1994
- Regional Transportation Review, Final Report, April 1996

Executive Summary

BUILDING AN EXPRESSWAY in the Red Hill Valley will result in significant changes. However, over the past twelve months, the Region has reduced the impacts that will be caused by the road's construction and operation. Major improvements have been proposed in the design of the creek, and in the Expressway design approved in 1985. This has been accomplished through intensive discussion with agencies and the public.

How is the 1985 Expressway design different from the 1998 design? Is the Region on schedule? Answers to these questions and others listed below are documented in this Executive Summary:

- Who is assisting the Region, MTO and the community with this work?
- What does the project include?
- What impact will the project have on the natural environment and the adjacent neighbourhoods, and what strategies will be used to reduce the predicted impacts?
- What will be the cost and is it within budget?
- Will there be further opportunities for community input to this project?

***Note:** A more detailed record of project impacts is provided in Draft Summary Report Volume 2 and supporting Technical Reports.*

How is the 1985 Expressway design different from the 1998 design?

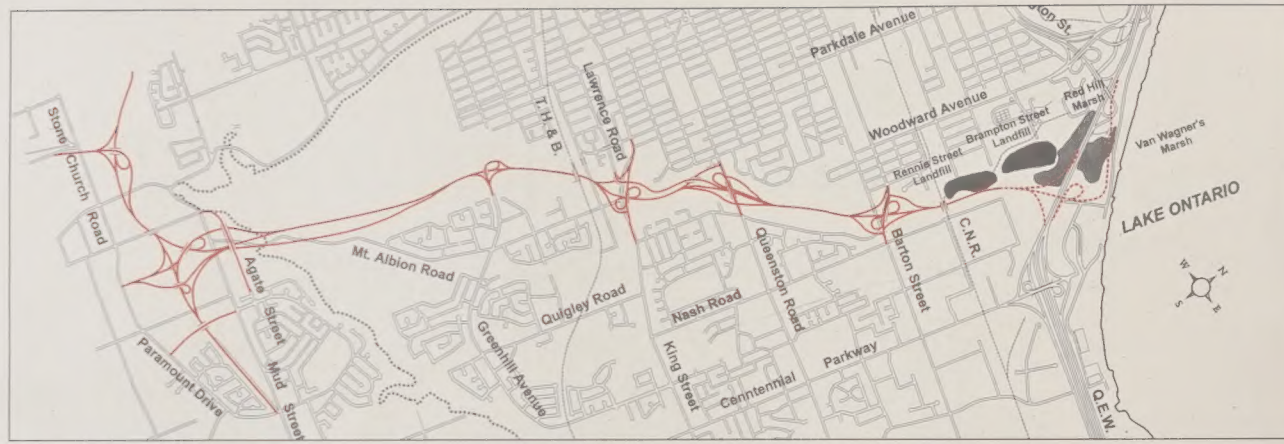
DIFFERENCES BETWEEN the 1985 Expressway design and the 1998 design are illustrated in ***Figure 1*** and highlighted below:

1985 Expressway Design	*1998 Expressway Design*
3 northbound and 3 southbound through lanes	2 northbound and 2 southbound through lanes
Dual expressway crossings of the Niagara Escarpment (on a 7% grade) to allow the northbound and southbound lanes to straddle Ontario Hydro transmission lines	Single combined crossing of the Niagara Escarpment (on a 4% grade)with possible structure on the west side of the Ontario Hydro transmission lines
Interchanges at Mud Street, Greenhill Avenue, King Street, Queenston Road, Barton Street, and a connection to the QEW (a proposal was developed in 1990 by MTO)	Interchange modifications made at: Greenhill Avenue, Queenston Road, Barton Street, QEW/Expressway and QEW at Burlington Street
Basket weave ramps between Queenston Road and King Street	No basket weave ramps between Queenston Road and King Street
4 km of creek banks in concrete channel	Natural channel design approach minimizes the need for concrete treatments
14 Expressway crossings of Red Hill Creek (in addition to existing bridges and culverts)	8 Expressway crossings of Red Hill Creek (in addition to existing bridges and culverts)
Pedestrian access over Expressway near Escarpment and at Melvin Avenue	Pedestrian access provided at Escarpment, Greenhill Avenue interchange and Barton Avenue Interchange. Pedestrian/cyclist access also enhanced under QEW at Woodward Avenue.

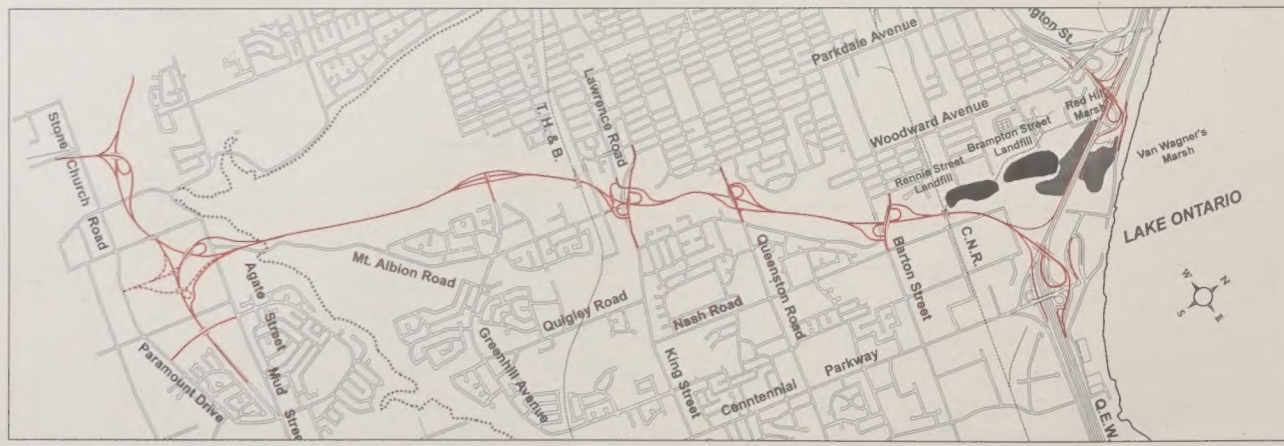
How is the 1985 Expressway design different from the 1998 design?

Figure 1:

1985 Expressway Design



1998 Expressway Design



In terms of natural environment and neighbourhood impacts, differences between the 1985 and 1998 Expressway design are as follows:

Red Hill Creek Expressway (Mud Street to Brampton Street)

Vegetation and Wildlife - the current proposal has less paved surface and better wildlife migration opportunities as a result of the proposed structures and creek realignment to the west side of the Expressway.

Fisheries - current creek realignment activities allow for the creation of fish habitat in areas that would have not been possible under the previous design.

Water Quality/Quantity - the natural channel design approach associated with the current design allows the Region to reduce sediment loading to Hamilton-Harbour. Stormwater quality facilities and the new Red Hill Valley CSO pipe will not only address Expressway runoff but also make significant and immediate improvements in water quality conditions consistent with the Red Hill Creek Watershed Plan.

Trails - the current proposal incorporates a trail system whereas the 1985 Expressway design did not.

QEW (Highway 20 to Burlington Street)*

Vegetation and Wildlife - the current proposal reduces wetland loss from Van Wagners Wetland and Red Hill Marsh by 1.5 hectares (total loss now equals 0.6 hectares).

Residential - the current proposal displaces no residential properties (1990 proposal displaces 6).

Confederation Park - the current proposal causes less disruption to park activities (i.e., relocates a shorter section of Van Wagners Road, causes less QEW traffic encroachment in active recreational areas).

Site Contamination - the current proposal avoids crossing the former Stoney Creek Landfill.

Utilities - the current proposal allows expansion of the Region's water pumping station in the Burlington Street interchange area.

Cost - the current proposal saves provincial taxpayers approximately $50 Million in additional road construction cost.

** Comparison is based on MTO's 1990 Red Hill Creek Expressway/QEW interchange design.*

Is the Region on schedule?

YES, WE ARE COMPLETING the preliminary design as per our schedule and now entering detail design and construction.

Design and Construction Phase

Over the next year, the Region/MTO will advance the project into detail design and finally to construction. As this process evolves, project expenditures increase substantially. Therefore, from a scheduling and cost perspective, it is important to reach agreement on design issues and impact reduction strategies now rather than later.

Could reported impacts of this project change between now and construction?

In most cases, no, but some aspects of the project will evolve with the design. For example, the creek realignment that is currently proposed will be refined through detail design. Although the general location will be set before construction, the final alignment must be determined in the field to respond to local topography and vegetation.

Construction Schedule

The Region will start construction of the 'Linc' extension from Dartnall Road to Mud Street in the fall of 1998. This section of roadway is expected to be open to traffic in the fall of 1999.

Construction from the top of the Niagara Escarpment, through the Red Hill Valley and along QEW (Highway 20 to Burlington Street) will begin after remaining permits and approvals are granted. It is anticipated that contract tenders will be called in the summer/fall of 1999. Completion of the work is expected in fall of 2002. At that time the Expressway will be open to traffic.

Is the Region on schedule?

DRAFT SUMMARY

Who is assisting the Region, MTO and the community with this work?

What does 'the project' include?

Who is assisting the Region, MTO and the community with this work?

THE REGION HAS ASSEMBLED a diverse team of environmental and design specialists with provincial, national and in some cases international experience in the following fields:

- Environmental Planning
- Wildlife & Plant Ecology
- Fisheries
- Stream Design
- Air Quality
- Noise Assessment
- Archaeology
- Built Heritage
- Site Contamination
- Landscape Architecture
- Groundwater
- Engineering Design
- Water Quality/Flood Control
- Architecture Detailing/Urban Design

In addition, a professional facilitator has been retained to facilitate community meetings.

Overall, the level and diversity of specialized skill that has been committed to a highway project of this size is unprecedented in this Region or the Province of Ontario.

What does 'the project' include?

THERE ARE FOUR KEY components to the project (*see Map 1*):

1. The Expressway

The Region will construct and cost share with the Ministry of Transportation (MTO) a four-lane roadway (i.e., two northbound through lanes and two southbound through lanes with a median in the middle) that extends from the Lincoln Alexander Parkway to a point immediately south of the QEW/ Expressway interchange. A fifth lane in the southbound direction will be added in the vicinity of the Niagara Escarpment to accommodate slower moving up-bound traffic. Neighbourhood access to and from the Expressway will be provided at Mud Street, Greenhill Avenue, King Street, Queenston Road, and Barton Street. Special pedestrian/cyclist access to destinations east and west of the Expressway will be provided at the Niagara Escarpment, Greenhill Avenue interchange, Barton Street interchange and under the QEW at Woodward Avenue. The following road closures will also occur immediately prior to the Expressway opening or as necessary to accommodate construction:

- Mt Albion Road - just south of the Glendale Golf And Country Club access,
- Pottruff Road - at Barton Street
- Nash Road - south of Brampton Street
- Brampton Street - west of Kenora Avenue
- Melvin Avenue - on west side of valley

The MTO will construct and fund entirely the QEW/Expressway interchange as well as improvements to the QEW/ Burlington Street interchange required to ensure the continued safe operation of this provincial roadway.

2. Red Hill Creek Natural Channel Realignment

As a result of past development activity, the portion of Red Hill Creek that extends from approximately the TH&B rail to Barton Street erodes at an abnormally high rate. This has caused the Creek to become very unstable, i.e., it frequently erodes its banks due to high storm runoff volumes and velocities; it destroys fish habitat, stream banks, trees and other vegetation.

Measures to correct this problem have been incorporated in the Expressway project. The current approach is based on natural channel design principles. This means the Region will realign a 5-km section of the Red Hill Creek and associated floodplain along the west side of the Expressway in a pattern consistent with local topography, geology and vegetation. The new creek alignment will be stabilized with natural materials instead of concrete channels. Over the long term, maintenance costs are expected to be significantly lower than a creek lined with concrete. The existing concrete channel at Queenston Road will be replaced with a more natural design and existing concrete saddles south of King Street will be removed.

The Federal Department of Fisheries and Oceans, who is responsible for authorizing work associated with fish habitat, supports the Region's use of a natural channel design approach.

Overall, it reduces the number of additional times the Expressway crosses Red Hill Creek from 14 to 8.

3. Stormwater Management Facilities

Storm detention areas will prevent flooding of the Expressway and the QEW during major storm events, and stormwater ponds will treat runoff from the Expressway to ensure no further degradation of the water quality of Red Hill Creek and Hamilton Harbour.

4. Red Hill Combined Sewer Overflow Pipe

Combined Sewer Overflow (CSO) outfalls in the Melvin Avenue/Heath Street, Queenston Road and Lawrence Road areas discharge sewage and stormwater pollution directly to Red Hill Creek. The Region has received Ministry of the Environment approval to construct a CSO pipe to address these discharges.

Within the Expressway right-of-way, the Region will construct a 2.2 to 3.0 metre diameter CSO pipe from Lawrence Road to the CNR tracks north of Barton Avenue. The new facility will reduce the number of times CSO pollution reaches the Red Hill Creek from 20 - 27 to approximately 2 times per year.

The ability to build this pipe with the Expressway means that the pollution problem can be addressed much sooner than previously anticipated and at a lower cost.

What impact will the project have on the natural environment and the adjacent neighbourhoods, and what can be done to reduce the predicted impacts?

MAP 2 ILLUSTRATES the positive and negative impacts of the project.

Map 3 illustrates the mitigation/opportunities the Region is working on to reduce this project's impacts.

Vegetation and Wildlife

Within the Valley study area (i.e., the Red Hill Valley between Mud Street and Brampton Street) there is approximately 292 hectares of open space/natural area containing a variety of vegetation communities and wildlife habitats. This includes: agricultural areas (i.e., cultivated fields and nurseries), open space (i.e., recreational and landscaped areas), human-made woodland/forest (i.e., plantations, cultural woodlands and non-native forests), natural woodland/forest (i.e., valley slope, floodplain and escarpment complex woodlands and forests), successional areas (i.e., old field and other regeneration areas), and wetland areas (i.e., marsh and swamp).

- Approximately 25% (or 75 hectares) of this area will be cleared as a result of project construction. Of this figure: approximately 10% is open space, 50% is natural woodland/forest, 37% is successional, and 3% is wetland. Some of these habitats are considered significant and are known to support rare species of vegetation and wildlife. These figures may change slightly after detail design when stormwater management and creek realignment work has been finalized.
- Another 25% (or 74 hectares) of this area may be negatively impacted by Expressway construction activities (e.g., dust, erosion, sedimentation, etc.) and traffic operation (e.g., salt spray, noise, pollution, etc.). The full extent of impact will be monitored and mitigated after construction.
- The estimated number of trees removed (i.e., trees with trunk diameters greater than 5 centimeters) is approximately 40,000. Earlier estimates by community sources quote 47,000. Discrepancies between the two estimates are likely attributable to where sampling was conducted (i.e., dense immature forest and plantation vs. more open areas and mature forest). Nonetheless, both estimates are effective at highlighting the extent of tree loss in the valley.
- Impacts to ecosystem functions (e.g., core areas and wildlife corridors) along the Niagara Escarpment, and along the Red Hill Valley will be high (i.e., cannot be mitigated) regardless of changes made during detail design and construction. This is due to the permanent loss of vegetation and wildlife habitats within the study area, and the severance of a

Lake Ontario Corridor

Niagara Escarpment Corridor

Red Hill Valley Corridor North/South of Queenston Rd.

What impact will the project have on the natural environment and the adjacent neighbourhood, and what can be done to reduce the predicted impacts?

primary wildlife corridor that connects the Lake Ontario shoreline to the Niagara Escarpment and beyond.

Within the QEW study area (i.e., north of Brampton Street to the Lake Ontario shoreline, between Highway 20 and the Burlington Street interchange) there are 134 hectares of open space/natural area containing a variety of vegetation communities and wildlife habitats:

- Approximately 14% (or 18 hectares) of this area will be cleared as a result of construction activity. Of this figure: approximately 39% is open space, 1% is natural woodland/forest, 1% is aquatic, 6% is natural woodland/forest, 50% is successional, and 3% is wetland. Some of these habitats are considered significant and are known to support rare species of vegetation and wildlife.
- Approximately 0.6 hectares (or 4%) of Van Wagner's Ponds, a Provincially Significant Wetland, will be directly impacted through project construction. The loss to wetland function is considered high. This is due primarily to the loss of known breeding habitat for Least Bittern, a rare bird species. Attempts will be made to recreate similar habitats in the vicinity of the wetland.

The Region has established a Landscape & Restoration Advisory Group (LRAG) to provide advice in the development of a plan to guide the re-creation and restoration of vegetation communities and wildlife habitats. The Red Hill Creek Watershed Plan has identified opportunities for habitat improvement, re-creation and restoration and this has provided guidance to the restoration plan. To date, a number of important strategies have emerged from this process (***see Map 3***).

Red Hill Creek Stability

The Region will utilize a natural channel design approach to resolve the creek erosion problems that persist from the Kings Forest Golf Course through to Barton Street. Regardless of the Expressway, if corrective measures are not used, the creek will eventually widen to five times its present width and permanently remove approximately 30% of the vegetation that exists within the valley.

Fish Habitat

Removal of the Queenston Road channel and concrete saddle south of King Street; the provision of bridges in some areas rather than culverts; and creek stabilization works described earlier, will all improve the quality and quantity of fish habitat in Red Hill Creek. In other words, when the project is completed there will be an overall increase in the quality and quantity of fish habitat in Red Hill Creek.

The Federal Department of Fisheries and Oceans (DFO) must authorize any removal or modification of fish habitat. DFO will not approve habitat destruction without proper compensation. Habitat compensation plans are usually developed during detail design when engineering details and other impact reducing works are being finalized. Replacement of habitat is the preferred form of compensation and the Region's goal.

Channel Bank Erosion

Queenston Road Concrete Channel

The Region's fishery biologist releasing fish after sampling

Water Quantity and Quality

Stormwater detention areas are being designed to protect the Expressway and QEW from major storm events.

Stormwater quality facilities (i.e., CSO storage pipe, and stormwater quality wetlands, wetponds and grass swales) will result in a net reduction in annual contaminant loading to the Red Hill Creek and Hamilton Harbour. This, coupled with creek stability works, will produce major water quality benefits to the Red Hill Creek and Hamilton Harbour.

Air Quality

Air quality impacts have been assessed at both a Region wide and local scale.

Region Wide
(Region of Hamilton-Wentworth)

Based on Year 2020 peak "rush hour" predictions, the Red Hill Creek Expressway will decrease vehicle emissions in the Region by 3 to 16%.

Prediction results also indicate that temperature changes associated with vegetation loss and increased pavement in Red Hill Valley will be Regionally insignificant.

Local
(Red Hill Valley)

The following results are based on predictive models that assume worst-case scenarios for vehicle emissions at 150 locations within and immediately adjacent to the Red Hill Valley, including places where people live, go to school, or play:

- Carbon Monoxide (CO) concentrations will remain to be well within Provincial air quality criteria (i.e., Ministry of the Environment Ambient Air Quality Criteria).
- Nitrogen Dioxide (NO_2) concentrations will remain within Provincial air quality criteria.
- Particulate Matter (PM10, small dust particles that are inhalable) concentrations are predicted to exceed the interim provincial criteria at most receptors, 13% of the time. Two receptors (i.e., 600 metres northeast of Queenston Road immediate adjacent to the Expressway, and the Glencastle playing fields) are predicted to exceed the interim provincial criteria by 4 to 5 times*.
- Total Suspended Particulate (all sizes of dust particles) is also predicted to exceed the provincial criteria at most receptor locations, 13% of the time. The maximum exceedance at the

Stormwater quality pond two growing seasons after construction

Air quality monitoring station

Glencastle soccer fields

Glencastle location is in the order of 4 times* the provincial criterion.

Roadway maintenance strategies such as road cleaning (i.e., wet sweeping and flushing of the roadway surface) and alternative approaches to de-icing, will be investigated as possible ways to reduce TSP and PM10 levels. As well, a post-construction monitoring program will be considered in the Glencastle area along with tree plantings in the immediate vicinity of the Expressway.

Special consideration will be given to relocating Glencastle playing fields and sections of the Red Hill Valley Recreation Trail.

Finally, prediction results indicate that temperature changes associated with vegetation loss and increased pavement in Red Hill Valley will be minor (i.e., temperatures will increase by approximately 2 degrees Celsius within 120 metres of the roadway).

** Prediction results appear to be highly conservative. Monitoring work carried out along Highway 404 in Markham shows actual levels of PM10 and TSP to be 3 to 4 times lower than Regional predictions and this is with approximately 25% more traffic than the Expressway will carry during peak travel periods. Therefore, it is likely that the predictions for the Expressway are much higher than would likely be realized. Nevertheless, the potential health effects of even marginally high PM10 levels are now being examined.*

Noise

Without noise barriers, existing sound levels in residential backyard areas from the Greenhill Avenue area to Brampton Street will increase by up to 20 dBA (dBA - decibels of sound averaged over a 24 hour period). People experience increases in sound levels the following ways:

- < 3 dBA is not noticeable;
- 4 to 5dBA is considered just-noticeable;
- 6 to 9 dBA is considered marginally significant; and,
- >10 dBA is considered significant on an increasing basis.

Noise levels along the QEW are not expected to increase more than 3 dBA as they are already high.

Ways to reduce noise levels (i.e., barriers) will be investigated during detail design.

Investigations will be focused along most of the Expressway corridor (see Map 3). If barriers are feasible, they can reduce noise increases by 5 to 10 dBA.

Noise barrier on East-West Line

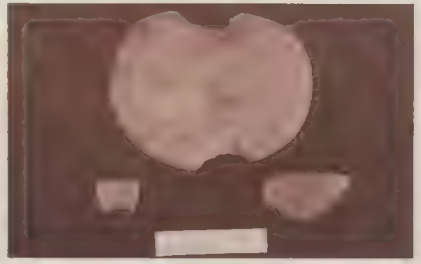
Cultural Heritage (Archaeological Sites, Built Heritage Features and Cultural Landscapes)

- A total of 21 archaeological sites will be potentially impacted by road works in the Red Hill Valley and along the QEW (18 and 3, respectively). Of these sites some are minor and have already been properly documented while others are more significant and require excavation and salvage of artifacts. No human remains have been uncovered, however, should this happen, the appropriate authorities will be contacted as per provincial requirements. Archeological assessment will be ongoing throughout the remaining phase of design and construction.
- A total of 10 built heritage features will be potentially impacted by road works in the Red Hill Valley (none along the QEW). Where features cannot be retained they will be documented.
- A total of 15 cultural landscape units (i.e., areas that have been altered by humans) will be impacted by road works in the Red Hill Valley and along the QEW (13 and 2, respectively). In all cases either no additional work is required because adequate information has already been collected or some form of protective measure is recommended to retain the landscape feature.
- All archaeological work must be carried out and documented to provincial standards using licensed professionals.

Contaminated Sites

- Expressway construction will result in the excavation of 124,000 m³ of material from the Rennie Street Closed Landfill. This includes 2000 m³ of hazardous waste, 100,000 m3 of non-hazardous waste and 22,000 m³ of clean till.
- Expressway construction will also intersect four sites in the Nash Road area that are potentially contaminated. Once acquired, site specific testing will be carried out during detail design to determine the type and extent of potential contamination.
- The waste on these sites will be managed as per Ministry of the Environment guidelines. The Region has assumed worse case clean-up conditions.

Red Hill Creek Valley Road



Selected Artifacts from the Recliner Site

Site Contamination

Visual Resources (Niagara Escarpment)

All municipally proposed infrastructure projects within the Niagara Escarpment planning area must adhere to the guidelines [illegible] Niagara Escarpment Commission (NEC). Hence, the Region in agreement with NEC has undertaken [illegible] study to determine the impact of expressway construction on the Niagara Escarpment.

Based on the current preliminary design for the Escarpment area, views of the Escarpment from trails within 0.5 km of the road, Kings Forest Golf Course Clubhouse and some sections of Mountain Brow Blvd. will experience a high visual impact as a result of:

- a 70 metre wide and maximum 15 metre high rock cut through the Escarpment (at a 4% grade) with a possible retaining wall on the east side;
- an elevated road in the section below the Escarpment, and
- exposed hydro tower

Landscaping cannot reduce this impact.

Residents living along the Glencastle Drive/Forest Hill Crescent area whose backyards face the Expressway will experience a high visual impact as well.

As a result of this assessment, the Region will explore modifications to the current preliminary design and relocation of the hydro tower to reduce the visual impact of the crossing in consultation with the Niagara Escarpment Commission.

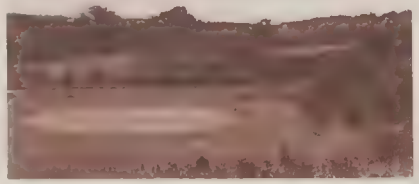
View from King Forest Golf Club clubhouse terrace

Existing/Future Land Use

Trails and Pedestrian Accesses:

- Red Hill Valley - a trail designed for pedestrian and cyclist use will be permanently established along the west side of Red Hill Valley from the Niagara Escarpment to Melvin/Barton Street. From that point, the valley trail will connect to Woodward Avenue, and under the QEW to the waterfront trail system. Streetscape improvements to Woodward Avenue and the QEW crossing will be made to ensure safe pedestrian and cyclist access.
- Bruce Trail - the section of trail impacted by the Expressway will be realigned to connect under the proposed structure located near the foot of the Niagara Escarpment.
- Greenhill Avenue Interchange - will provide pedestrian/cyclist access to the Valley.
- Barton Avenue Interchange - will provide pedestrian/cyclist access from Pottruff Road.

Red Hill Valley Recreation Trail



Rosedale Park baseball diamonds

Warrants for school crossing guards will be examined at the Greenhill/Harrisford and Barton Street crossing locations.

Recreational Parks/Golf Courses:

Glencastle Park - Expressway embankments and air quality predictions directly impact the 3 soccer fields located in this area. Discussions regarding the future suitability of this site for active recreational use will take place prior to detail design

Rosedale Park - the final realignment of Red Hill Creek could result in the displacement of 1 to 3 baseball diamonds near the Combined Sewer Overflow tank Opportunities to replace and possibly increase the number of ball diamonds in the immediate area will be examined when the final creek alignment is determined in detail design.

Globe Park - proposed stormwater and fishery/wildlife habitat works may require the displacement of one baseball diamond. The feasibility of using this site will not be known until soil contamination work is carried out during detail design.

Confederation Park - modifications to the Burlington Street interchange will impact Van Wagner's Pond and relocate a 450 metre section of Van Wagner's Road. An informal trail along the abandoned rail line will also be interrupted.

Burlington Street/Woodward Avenue Parkette - the proposed realigned ramp from Burlington Street to Woodward Avenue will impact an existing parkette. A plan to minimize impacts will be developed during detail design.

Woodward Avenue South Extension - the unused extension of Woodward Avenue south of Melvin Avenue could be used for recreational purposes. A plan to develop this land for this purpose will be produced during detail design.

- ings Forest Golf Course - minor impacts may occur from creek realignment activities. Details will not be known until detail design is completed.

[redacted]

Residential Property

Land from the rear lot limits of 3 residential properties adjacent to the Valley will be required. The Region will negotiate a fair market settlement with each landowner.

Open Space (consisting of natural and recreational areas)

In total, approximately 70 hectares of public open space (as designated by the Official Plan) will be directly impacted. Of this, the Expressway will permanently remove 60 hectares and the remaining area will be temporarily disrupted by creek realignment and stormwater management works.

Industrial Property

In total, land from 3 privately owned industrial properties is required. The Region will negotiate a fair market settlement with each landowner.

Utilities and Rail

Plans are underway to relocate a 750-metre section of the Trans Northern pipeline within the Expressway corridor in the vicinity of the Escarpment.

As well, discussions are progressing with CN to address rail line issues north of Barton Street and Ontario Hydro to ensure there are no impacts to existing transmission towers. This may require the relocation of some towers

The Region/MTO, however, will assess the Water Pumping Station Infrastructure and long term maintenance of the intake pipes at the Burlington Street Interchange.

What will be the cost and is it still within budget?

C - TS ASSOCIATED with the Regional portion of the aforementioned work is in the order of $136 Million which is still within the approved budget

What will be the cost and is it still within budget?

Will there be further opportunities for community input to the design of this project?

Will there be further opportunities for community input to the design of this project?

YES, THE REGION AND MTO will continue to work with the Community Stakeholder Committee (CSC) that was established in September 1997. The CSC provides the Region/MTO advice and recommendations on matters affecting the Expressway design and impact reduction measures (i.e., mitigation). For now, the CSC has agreed to provide advice/recommendations to the Region/MTO regarding staff's selection of a preferred Expressway design and proposed mitigation strategies.

The next stage of the project (detail design) will involve further refinements to the project design and the development of detailed mitigation plans. The following will be discussed with government agencies, community groups and adjacent residents (where appropriate) over approximately the next 6 to 8 months:

Trail Relocation and Pedestrian Access
(i.e., Bruce Trail, Red Hill Valley Recreational Trail, Van Wagner's Marsh Trail, Woodward Avenue/QEW Access, Greenhill Avenue Access and Barton Street Access).

Recreational Parks
(i.e., Rosedale Park baseball diamonds, Burlington Street parkette , Kings Forest Golf Course, Globe Park baseball diamonds, Glencastle Park soccer fields, and the proposed Linear Park along the Woodward Avenue right-of-way south of Melvin Avenue)

Wildlife and Plant Habitat Restoration, and Landscaping
(i.e., Greenhill Avenue interchange and street design, Queenston Road to Barton Street - top of valley along the east bank, and gateway treatments at King Street/ Queenston Road/Barton Street interchanges)

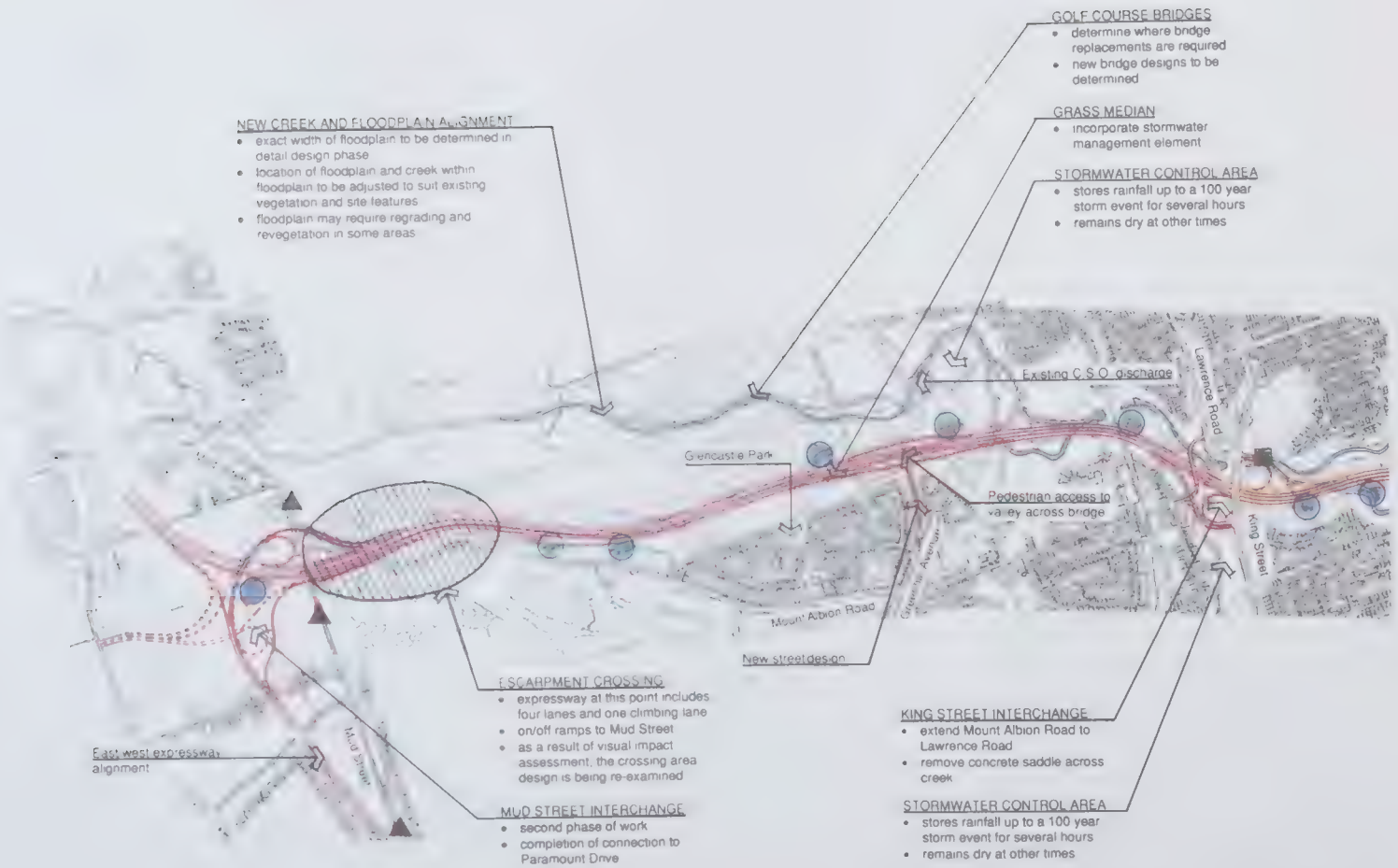
Noise Barriers
(i.e., in the areas where warranted)

Air Quality
In light of the predicted air quality, the Region will ensure that all findings and recommendations of government agency reviewers, community organizations such as the Hamilton Air Quality Initiative study team, and the Region's consultants, are communicated to area residents and users of recreational areas adjacent to the Expressway.

A more detailed account of consultation activities is described in the Region's *Red Hill Creek Expressway Impact Assessment and Design Process - Draft Summary Report Volume 2* document.

MAP 1

Project Map


GOLF COURSE BRIDGES
• determine where bridge replacements are required
• new bridge designs to be determined
GRASS MEDIAN
• incorporate stormwater management element
STORMWATER CONTROL AREA
• stores rainfall up to a 100 year storm event for several hours
• remains dry at other times
NEW CREEK AND FLOODPLAIN ALIGNMENT
• exact width of floodplain to be determined in detail design phase
• location of floodplain and creek within floodplain to be adjusted to suit existing vegetation and site features
• floodplain may require regrading and revegetation in some areas
Existing C.S.O. discharge
Lawrence Road
Glencastle Park
Pedestrian access to valley across bridge
King Street
Mount Albion Road
Gillespie Avenue
New street design
ESCARPMENT CROSSING
• expressway at this point includes four lanes and one climbing lane
• on/off ramps to Mud Street
• as a result of visual impact assessment, the crossing area design is being re-examined
KING STREET INTERCHANGE
• extend Mount Albion Road to Lawrence Road
• remove concrete saddle across creek
East west expressway alignment
Mud Street
MUD STREET INTERCHANGE
• second phase of work
• completion of connection to Paramount Drive
STORMWATER CONTROL AREA
• stores rainfall up to a 100 year storm event for several hours
• remains dry at other times

RED HILL CREEK EXPRESSWAY
North/South Section - Project

North

Region of Hamilton-Wentworth

Potential requirement for retaining wall
Remove concrete channel and relocate creek under west bridge
Potential requirement for retaining wall or cut slope
Railway bridge
New ramps
WOODWARD AVENUE UNDERPASS
• design for bicycles and pedestrians
Minor realignment of Van Wagner's Beach Blvd
Excavate floodplain to lake level to improve flood conveyance
Queenston Road
Barton Road
Nash Road
Brampton Street
Queen Elizabeth Way
BICYCLE PEDESTRIAN LANE
• on south side of bridge
• separate lane from car traffic

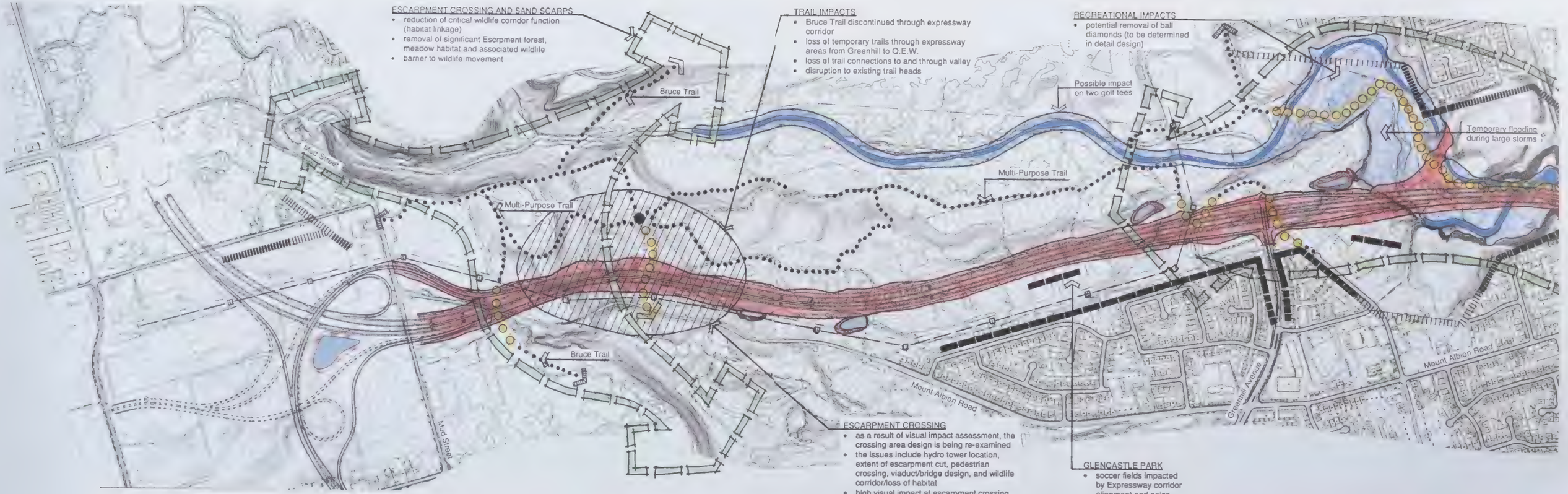
LEGEND

- Expressway
- C S O (Combined Sewer Overflow Pipe)
- Creek Alignment
- Storm Water Management Pond
- Road Closure
- Bridge
- Culvert

MAP 2A

Impact Map

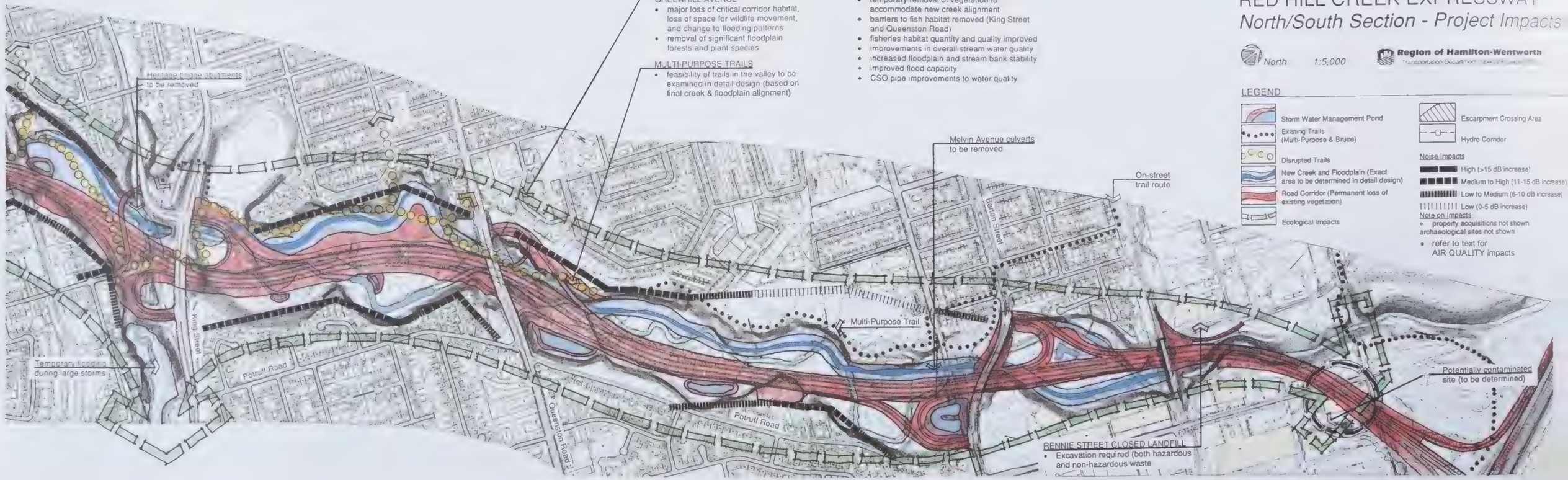
Red Hill Creek Expressway
North/South Section


ESCARPMENT CROSSING AND SAND SCARPS
• reduction of critical wildlife corridor function (habitat linkage)
• removal of significant Escrpment forest, meadow habitat and associated wildlife
• barrier to wildlife movement
TRAIL IMPACTS
• Bruce Trail discontinued through expressway corridor
• loss of temporary trails through expressway areas from Greenhill to Q.E.W.
• loss of trail connections to and through valley
• disruption to existing trail heads
RECREATIONAL IMPACTS
• potential removal of ball diamonds (to be determined in detail design)
Possible impact on two golf tees
Temporary flooding during large storms
Bruce Trail
Mud Street
Multi-Purpose Trail
Multi-Purpose Trail
Bruce Trail
Mud Street
Mount Albion Road
Greenhill Avenue
Mount Albion Road
ESCARPMENT CROSSING
• as a result of visual impact assessment, the crossing area design is being re-examined
• the issues include hydro tower location, extent of escarpment cut, pedestrian crossing, viaduct/bridge design, and wildlife corridor/loss of habitat
• high visual impact at escarpment crossing
GLENCASTLE PARK
• soccer fields impacted by Expressway corridor alignment and noise

RED HILL CREEK EXPRESSWAY
North/South Section - Project Impacts

North 1:5,000

Region of Hamilton-Wentworth
Transportation Department


CREEK VALLEY NORTH OF GREENHILL AVENUE
• major loss of critical corridor habitat, loss of space for wildlife movement, and change to flooding patterns
• removal of significant floodplain forests and plant species
MULTI-PURPOSE TRAILS
• feasibility of trails in the valley to be examined in detail design (based on final creek & floodplain alignment)
CHANGES TO CREEK AND FLOODPLAIN
• temporary removal of vegetation to accommodate new creek alignment
• barriers to fish habitat removed (King Street and Queenston Road)
• fisheries habitat quantity and quality improved
• improvements in overall stream water quality
• increased floodplain and stream bank stability
• improved flood capacity
• CSO pipe improvements to water quality
Heritage bridge abutments to be removed
Melvin Avenue culverts to be removed
On-street trail route
Barton Street
King Street
Potrutt Road
Temporary flooding during large storms
Multi-Purpose Trail
Queenston Road
Potrutt Road
Potentially contaminated site (to be determined)
RENNIE STREET CLOSED LANDFILL
• Excavation required (both hazardous and non-hazardous waste

LEGEND

- Storm Water Management Pond
- Existing Trails (Multi-Purpose & Bruce)
- Disrupted Trails
- New Creek and Floodplain (Exact area to be determined in detail design)
- Road Corridor (Permanent loss of existing vegetation)
- Ecological Impacts
- Escarpment Crossing Area
- Hydro Corridor

Noise Impacts
- High (>15 dB increase)
- Medium to High (11-15 dB increase)
- Low to Medium (6-10 dB increase)
- Low (0-5 dB increase)

Note on impacts
- property acquisitions not shown
archaeological sites not shown
- refer to text for AIR QUALITY impacts

MAP 2B

Impact Map

QEW Section

LAKELAND GO-KARTS
LAKELAND COMMUNITY CENTRE
Lakeland Community Centre
Hutch's Restaurant
Trail discontinued at interchange
Van Wagner's Beach Road
Pumping Station
Van Wagner
loss of baseball diamond at Globe Park
Reduction in park space
Burlington Street
RED HILL MARSH/ VAN WAGNER'S PONDS
(Provincially Significant Wetland)
• loss of wetland area (<1 1ha) and habitat diversity
• loss of habitat supporting significant species such as bittern
• changes to waterfowl and shorebird breeding and migration habitats
• barrier to trail system at interchange
• potential changes to wetland water levels

RED HILL CREEK EXPRESSWAY
Q.E.W. Section - Project Impacts

North 1:5,000

Region of Hamilton-Wentworth
Transportation Department, Special Projects Office

LEGEND

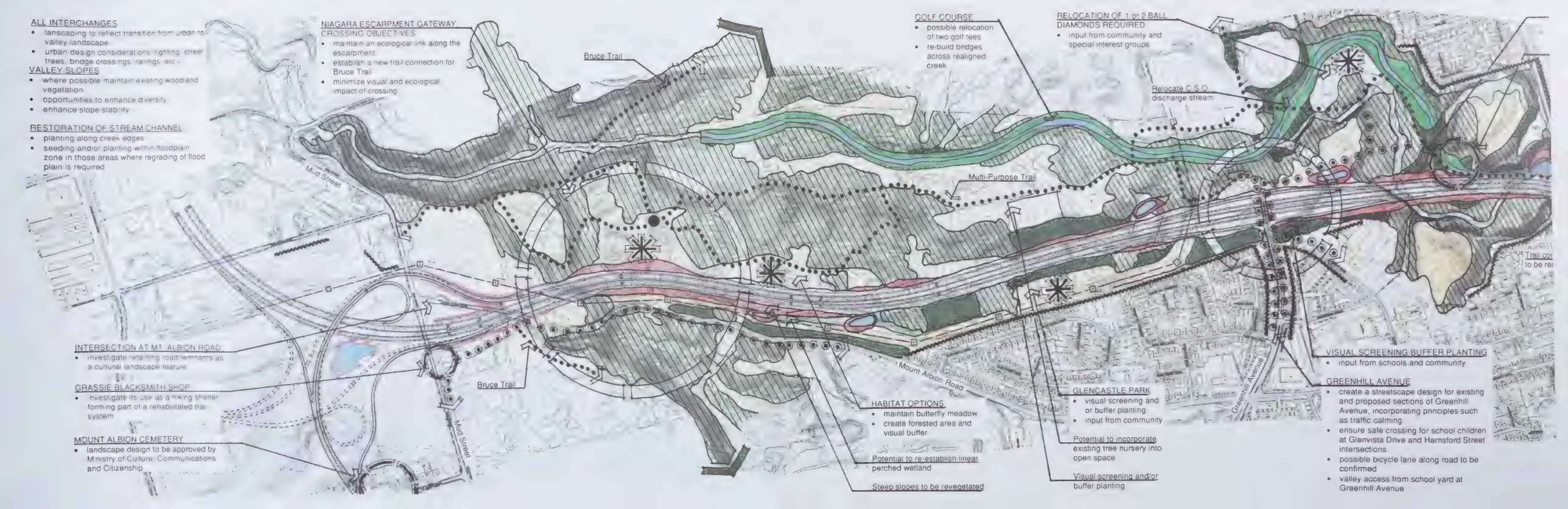
- Storm Water Management Pond
- Existing Trails (Multi-Purpose & Bruce)
- Disrupted Trails
- Old creek and new floodplain (area to be determined in detail design)
- Road Corridor (Permanent loss of existing vegetation)
- Ecological Impacts
- Escarpment Crossing Area
- Hydro Corridor

Note on Impacts
- property acquisitions not shown
archaeological sites not shown

MAP 3A

Mitigation Map

Red Hill Creek Expressway
North/South Section


ALL INTERCHANGES
• landscaping to reflect transition from urban to valley landscape
• urban design considerations (lighting, street trees, bridge crossings, railings, etc.)
VALLEY SLOPES
• where possible maintain existing woodland vegetation
• opportunities to enhance diversity
• enhance slope stability
RESTORATION OF STREAM CHANNEL
• planting along creek edges
• seeding and/or planting within floodplain zone in those areas where regrading of flood plain is required
NIAGARA ESCARPMENT GATEWAY CROSSING OBJECTIVES
• maintain an ecological link along the escarpment
• establish a new trail connection for Bruce Trail
• minimize visual and ecological impact of crossing
Bruce Trail
Mud Street
Bruce Trail
Mud Street
INTERSECTION AT MT. ALBION ROAD
• investigate retaining road remnants as a cultural landscape feature
GRASSIE BLACKSMITH SHOP
• investigate its use as a hiking shelter forming part of a rehabilitated trail system
MOUNT ALBION CEMETERY
• landscape design to be approved by Ministry of Culture, Communications and Citizenship
GOLF COURSE
• possible relocation of two golf tees
• re-build bridges across realigned creek
Multi-Purpose Trail
Mount Albion Road
HABITAT OPTIONS
• maintain butterfly meadow
• create forested area and visual buffer
Potential to re-establish linear perched wetland
Steep slopes to be revegetated
RELOCATION OF 1 or 2 BALL DIAMONDS REQUIRED
• input from community and special interest groups
Relocate C.S.O. discharge stream
GLENCASTLE PARK
• visual screening and or buffer planting
• input from community
Potential to incorporate existing tree nursery into open space
Visual screening and/or buffer planting
Greenhill Avenue
VISUAL SCREENING BUFFER PLANTING
• input from schools and community
GREENHILL AVENUE
• create a streetscape design for existing and proposed sections of Greenhill Avenue, incorporating principles such as traffic calming
• ensure safe crossing for school children at Glenvista Drive and Harnsford Street intersections
• possible bicycle lane along road to be confirmed
• valley access from school yard at Greenhill Avenue

RED HILL CREEK EXPRESSWAY
North/South Section - Project Mitigation

North 1:5,000

Region of Hamilton-Wentworth
Transportation Department, Special Projects Office

Re-establish woodland vegetation on berms after completion of grading for stormwater retention area
Creek and trail crossing to be resolved
KING STREET INTERCHANGE
• woodland vegetation to create visual link between Red Hill Creek valley and Davis Creek valley
• existing pedestrian underpass
HIXON ROAD BRIDGE ABUTMENTS
• position stormwater management facility to avoid interference with old bridge abutments
Lawrence Road
King Street
EXPOSED BEDROCK - QUEENSTON SHALE
• steep slope with escarpment like conditions
LINEAR URBAN PARK
• input from community
BARTON STREET INTERCHANGE
• new bridge across valley
• bicycle and pedestrian lane to provide safe crossing for school children
PROPOSED WOODLAND BUFFER
• screen views from residences
• input from residents
Barton Street
Multi-Purpose Trail
Existing oxbow/constructed wetland to be used for storm water flows
FISHERIES IMPROVEMENTS
• remove concrete saddle for fish migration
• modify culvert for fish passage
DAVIS CREEK
• temporary stormwater storage area retaining storm water up to a few hours
WOODLAND BUFFER
• screen views from residences
• input from residents
FISHERIES IMPROVEMENTS
• remove concrete channels
OPEN SPACE
• potential for additional woodland buffer
• input from community
Queenston Road
Potruff Road
STEEP SLOPES
• soil conditions to be evaluated for restoration potential
Nash Road
RENNIE STREET LANDFILL
• waste management required
• further site management investigation required
Queen Elizabeth Way

LEGEND

- Woodland
- New Woodland Planting/ Visual Buffer
- Creekside Planting
- Meadows
- Exposed Bedrock
- Steep Slopes for Revegetation
- Existing Creek
- Proposed Creek Alignment
- Storm Water Management Ponds
- Existing Trails
- Proposed Trails
- Gateway
- Noise Wall Studies

MAP 3B

Mitigation Map

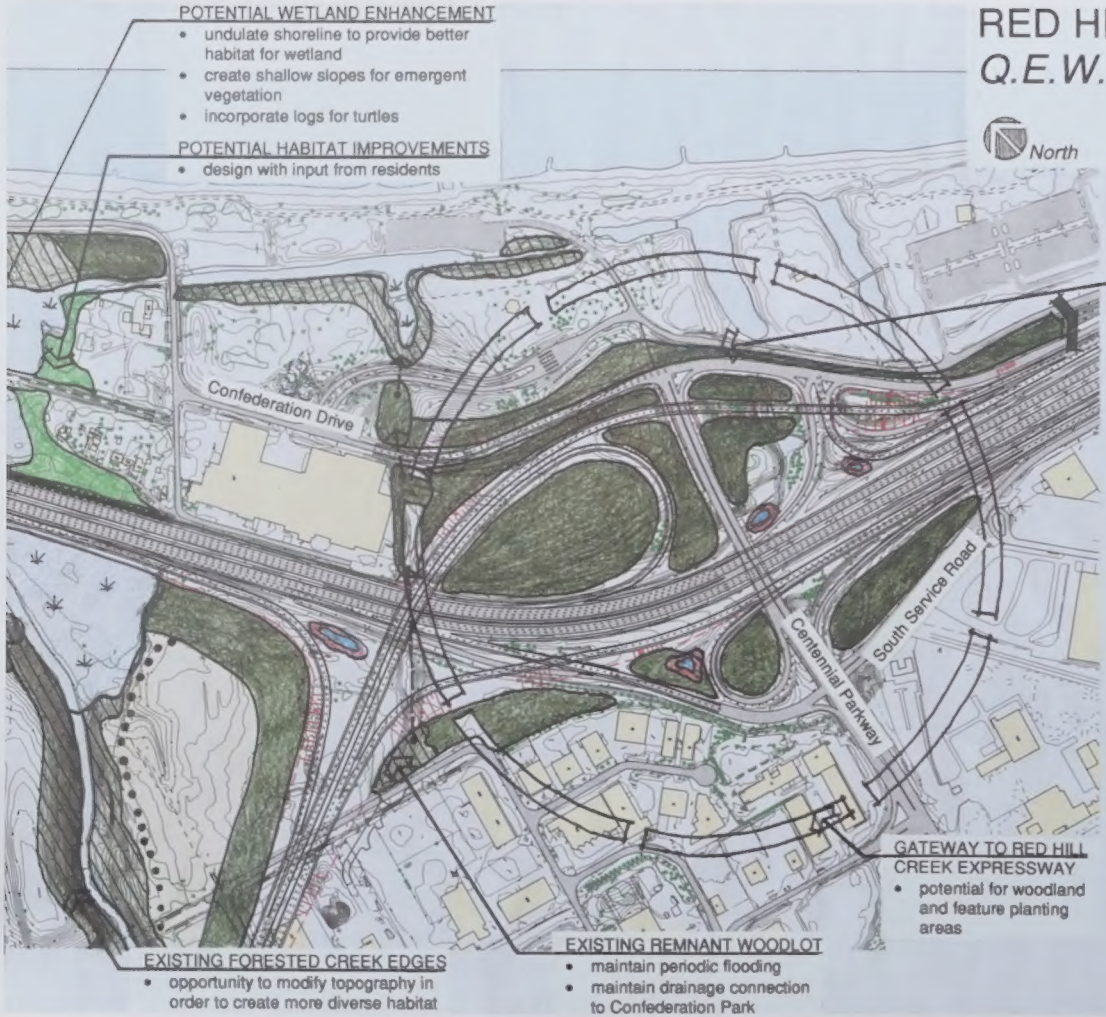
QEW Section

HIGHWAYS
• opportunity to visually screen
• design with input from Hutch's Restaurant
WOODWARD AVENUE AND Q.E.W.
improved bicycle and pedestrian access
Lakeland Community Centre
Hutch's Restaurant
Van Wagner's Beach Road
Woodward Avenue
Van Wagner's Marsh
FISHERIES HABITAT CREATION
• lowering of floodplain
OPTIONAL LOWERING OF FLOODPLAIN
• creation of new wetland
• new fish habitat
PARK SPACE
• redesign with input from residents
Existing wetland
Remnant Oak Savannah
Extend Oak Savannah
Burlington Street

RED HILL CREEK EXPRESSWAY
Q.E.W. Section - Project Mitigation

North 1:5,000

Region of Hamilton-Wentworth
Transportation Department, Special Projects Office


POTENTIAL WETLAND ENHANCEMENT
• undulate shoreline to provide better habitat for wetland
• create shallow slopes for emergent vegetation
• incorporate logs for turtles
POTENTIAL HABITAT IMPROVEMENTS
• design with input from residents
Confederation Drive
CONFEDERATION PARK
• visually screen expressway
• redesign with input from Conservation Authority
Centennial Parkway
South Service Road
GATEWAY TO RED HILL CREEK EXPRESSWAY
• potential for woodland and feature planting areas
EXISTING REMNANT WOODLOT
• maintain periodic flooding
• maintain drainage connection to Confederation Park
EXISTING FORESTED CREEK EDGES
• opportunity to modify topography in order to create more diverse habitat

LEGEND

- Woodland
- New Woodland Planting/ Visual Buffer
- Meadows
- Habitat Improvements
- Fisheries Habitat Creation
- Storm Water Management Pond
- Existing Creek
- Wetlands
- Optional Lowering of Floodplain
- Gateway
- Noise Wall Studies

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